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Assumed Mean Places for 1881·0 *of Stars compared with Comet* c, 1881 (*Schäberle*), *with Reductions to Apparent Places for the night of Observation.*

	Right Ascension.	Reduc.	Declination.	Reduc.	Authority.
	h m s	s	° ′ ″	″	h
a	12 0 36·610	+1·576	+37 26 53·40	−8·45	Bessel (W_2) 11–1170, 71
b	12 30 5·613	1·701	30 35 0·37	−7·73	,, 12–614, 15
c	12 27 36·592	1·699	30 41 48·71	−7·85	,, 12–554
d	12 43 58·904	1·770	27 4 51·51	−7·49	Cambridge Zones, April 30, May 11.

On Mr. Finlay's Pre-Perihelion Observations of the Great Comet (b) 1882.

(*Communicated by H.M. Astronomer at the Cape.*)

The following are the results of the observations obtained by Mr. Finlay on the morning on which he first saw the comet, and on the following morning. They are, I believe, the earliest exact observations of this remarkable body.

The observations were made with the filar micrometer of the 6-in. Equatorial. The results are corrected for refraction.

Cape M. T.	Right Ascension.	No. of Obs.	N.P.D.	No. of Obs.
d h m s	h m s		° ′ ″	
Sept. 7 17 23 15·7	9 31 44·54 − ·054*p*	14		
7 17 26 5·3			90 59 49·3 + ·551*p*	8
8 17 20 10·5	9 40 2·14 − ·054*p*	5		
8 17 27 16·7			90 56 22·8 + ·552*p*	5

The following are mean places of the stars of comparison, derived from recent observations with the Transit Circle :—

		R.A. 1882·0.	Corr.	N.P.D. 1882·0.	Corr.
	°	h m s	s	° ′ ″	″
For Sept. 7 Arg.	−0·2229	9 32 11·78	+1·82	90 56 40·57	+10·71
8 ,,	−0·2256	9 44 23·16	+1·82	90 52 18·46	+11·13

The mean places are for 1882·0; the corrections are to the apparent place on dates of observation.

Note on the Nucleus of the Great Comet (b) 1882. By David Gill, LL.D., H.M. Astronomer at the Cape of Good Hope.

(*Extract from a letter to Mr. Knobel.*)

In reply to the question which you ask on behalf of the Society, viz. Whether before perihelion the Great Comet of 1882 showed a duplex or compound nucleus, the observations recorded

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by Mr. Finlay and Dr. Elkin on September 7 and 8, and printed in the *Monthly Notices*, vol. xliii. p. 21, prove clearly that no duplicity could be detected with our optical means on these dates. Dr. Elkin describes the nucleus as a sharp, well-defined disk 10″ or 15″ in diameter and strongly condensed in the centre.

A short glimpse which I obtained between clouds on September 9 confirmed this view. The weather was unfavourable till the 17th (the day on which the disappearance of the comet at the Sun's limb was noted). The nucleus was certainly single on that day; half an hour before the disappearance of the comet it was measured by Mr. Finlay as 4″ in diameter.

The day following perihelion passage the comet was observed by myself with the Transit Circle. The nucleus was then undoubtedly single, and certainly rather under than over 4″ in diameter; in fact, as I have described it, it resembled very much a star of the 1st magnitude seen by daylight.

Mr. Finlay and Dr. Elkin made careful drawings on the 17th, and I made one on September 18, and we have a continuous series of drawings of the comet down to September 28, which prove that within the limits of our optical means the nucleus was single till that day inclusive.

The morning of September 29 was clouded.

On September 30 Mr. Finlay remarks in his note-book, "There seem to be two balls of light in the head." Dr. Elkin, with the Heliometer and low power, noted on the same morning that the nucleus was elongated.

On October 1 Mr. Finlay's sketch shows that the balls of light (as he calls them) were farther apart, but conected by a line of light.

On October 9 Mr. Finlay noted that there were several points of condensation in the nucleus; of these the two extreme points were brightest. These differed 1½ second in R.A.

On October 10 several bright points were noted, the middle ones slightly south of the line joining the extreme ends.

On October 12 Mr. Finlay makes the line of nuclei 39″ in length.

On October 17 I counted 5 points of condensation in a pale cigar-shaped nucleus, which, in a popular paper communicated to the Cape *Quarterly Review* (a copy of which I send), I have described as a narrow line fully a minute of arc in length, with five little nuclei from 2″ to 3″ of arc in diameter, looking like very small beads strung on a thread of worsted. But to realise this description it is necessary to suppose the beads to have very large holes, and the worsted to be fluffy, so as to swell out and meet round the beads.

On November 1 Mr. Finlay found the nucleus (or line of condensation) to measure 3½ seconds of time in R.A., and that it had become much more indistinct.

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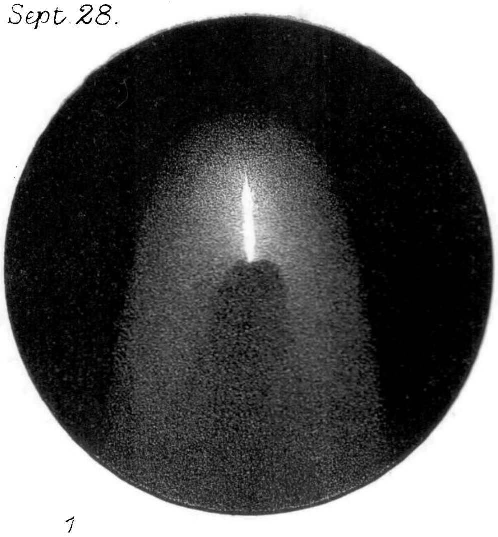
Monthly Notices of R. Astronomical Society.

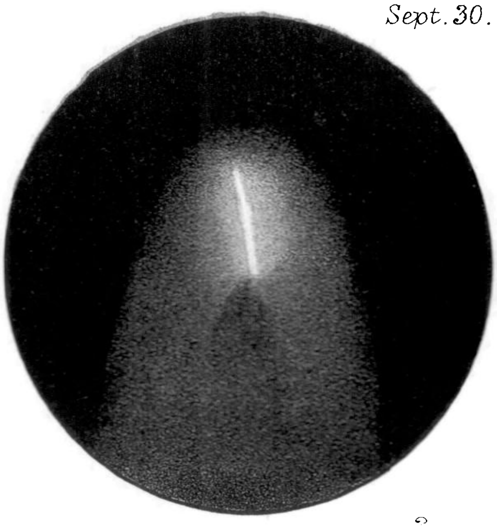
COMET b 1882.

Sept. 28.



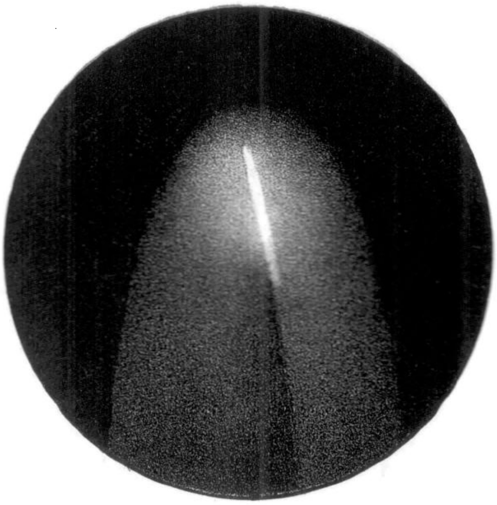
1

Sept. 30.



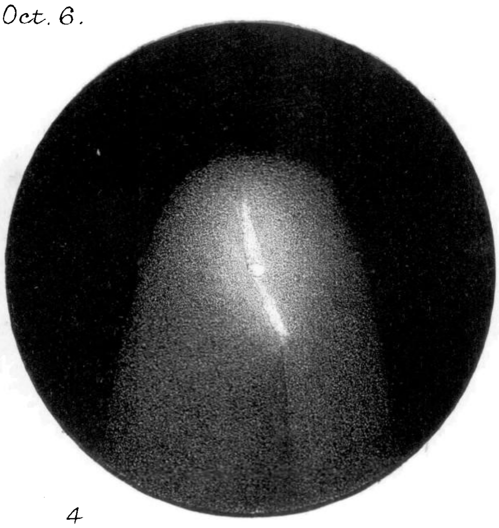
2

Oct. 2.



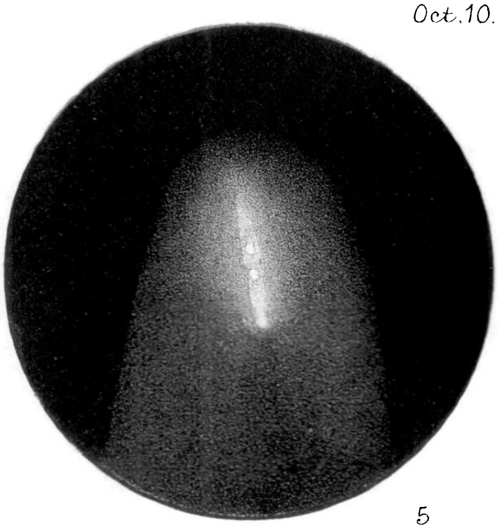
3

Oct. 6.



4

Oct. 10.



5

W.H.Wesley lith.

West, Newman & Co imp

Drawn by Major G.E. Strahan, R.E.
at Mussooree, India.

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Last night (March 6), though the comet is a conspicuous object in a good opera-glass, the nucleus, or head, is faint in the extreme, most difficult to observe in R.A., and liable to large personal error in observing. It is an ellipse of which the major and minor axes are about 3½′ and 1½′ respectively. It is now diminishing in apparent size; it seems to have attained its maximum apparent size in December.

The places of the comet obtained here depend from September 30 to November 23 on measures made to the following extremity of the nucleus, because till the latter date there was a distinctly brighter condensation towards that point. Previous to November 23 observations were made both with the Heliometer and the Equatorial. After November 23 observations were confined to the Equatorial, and it was also found necessary to observe the centre instead of the extremity of the nucleus.

The necessary data for reduction to any desired point of the nucleus are, however, available. But until it is possible to publish the drawings of the nucleus I am convinced that no satisfactory account of the changes in the nucleus or discussion of the orbit of the comet can be made, and on this account I do not propose to publish the Cape observations until the necessary drawings are published at the same time.

Note on Sketches of the Great Comet (b), 1882. By Major G. Strahan, R.E.

I send herewith a few sketches of the comet of last September, with the hope that they may be of interest to the Fellows of the Society who may not have been favoured with such clear skies as I was at Mussooree (at an altitude of 6700 feet), in the North-West Provinces of India. I had intended making a much longer series of them, but the changes in the comet's appearance after Oct. 10 were so trifling as to make it hardly worth while. The instrument used was a Browning-With Reflector, with an aperture of 8¾ inches, and power of 160. Unfortunately I had no micrometer available; the dimensions are, therefore, merely estimations.

Calcutta:
1882, *Dec.* 1.
